CLAIMS

1. Stereoscopic device comprising:

   a sensor assembly for detecting a sequence of stereoscopic images of an object;

   a movement detector, detecting the movements of said sensor assembly, relative to said object; and

   a processing unit connected to said sensor assembly and to said movement detector,

   wherein said processing unit selects portions of said stereoscopic images, according to a signal received from said movement detector, thereby producing a visually stable sequence of display images.

2. The stereoscopic device according to claim 1, wherein said sensor assembly comprises a lenticular lens layer and a light sensor array, wherein said lenticular lens layer is located in front of said light sensor array.

3. The stereoscopic device according to claim 1, wherein said processing unit comprises a processor connected to said movement detector and a memory unit connected to said processor.

4. The stereoscopic device according to claim 2, wherein said visually stable sequence of display images comprises a plurality of sub-matrices, wherein each one of said sub-matrices is selected from a respective one of said images.

5. The stereoscopic device according to claim 2, wherein each one of said sub-matrices is located at a distance equal to a respective one of

said movements from an origin, in a direction opposite to said respective movement, relative to said origin.

6. The stereoscopic device according to claim 1, further comprising:
   an interface connected to said sensor assembly and to said processor;
   a light source connected to said interface;
   a stereoscopic video generator connected to said processor; and
   a stereoscopic display unit connected to said stereoscopic video generator, for producing said visually stable sequence of display images.

7. The stereoscopic device according to claim 6, wherein said light source produces light in a predetermined range of wavelengths.

8. The stereoscopic device according to claim 6, wherein said light source produces at least two alternating beams of light, each said beams of light characterized as being in a different range of wavelengths.

9. The stereoscopic device according to claim 1, wherein said visually stable sequence of display images is stereoscopic.

10. The stereoscopic device according to claim 1, wherein said visually stable sequence of display images is partially stereoscopic.

11. The stereoscopic device according to claim 7, wherein said predetermined range of wavelengths is selected from the list consisting of :
   substantially visible red color light;

substantially visible green color light;
substantially visible blue color light;
substantially visible cyan color light;
substantially visible yellow color light;
substantially visible magenta color light;
substantially infra-red light;
substantially ultra-violet light; and
visible light.

12. The stereoscopic device according to claim 2, wherein said light sensor array is a color red-green-blue (RGB) sensor array.

13. The stereoscopic device according to claim 2, wherein said light sensor array is a color cyan-yellow-magenta-green (CYMG) sensor array.

14. The stereoscopic device according to claim 1, wherein the average of said movements is constant.

15. The stereoscopic device according to claim 1, wherein said sensor assembly further comprises:

at least two apertures, each said apertures including a light valve, each said light valves being operative to open at a different predetermined timing; and

a multi wavelength light sensor array,

wherein said multi wavelength light sensor array detects said images, each one of said images corresponding to a predetermined combination of an open state of a selected one of said light valves and a selected one of at least two alternating beams of light.

16. The stereoscopic device according to claim 15, further comprising a controllable multi wavelength illumination unit, connected to said controller, said controllable multi wavelength illumination unit producing at least two alternating beams of light, each said beams of light characterized as being in a different range of wavelengths.

17. The stereoscopic device according to claim 15, further comprising capture means, connected to said multi wavelength light sensor array, for capturing data received from said multi wavelength light sensor array.

18. The stereoscopic device according to claim 17, wherein said processing unit further comprises:

an image processor;

a storage unit connected to said image processor, said storage unit capturing said capturing data; and

a controller connected to said storage unit, said movement detector, said light valves, and to said multi wavelength light sensor array, said controller timing the operation of said light valves, said multi wavelength light sensor array and said controllable multi wavelength illumination unit.

19. The stereoscopic device according to claim 15, wherein said multi wavelength light sensor array includes at least two groups of sensors, wherein the sensors of each said group detect light in a different range of wavelengths.

20. The stereoscopic device according to claim 15, wherein said multi-wavelength light sensor array includes a plurality of sensors,

each said sensors detecting light in a predetermined range of wavelengths.

21. The stereoscopic device according to claim 16, wherein said controllable multi wavelength illumination unit produces at least two alternating beams of light, each said beams of light characterized as being in a different range of wavelengths.

22. The stereoscopic device according to claim 16, wherein each said different ranges of wavelengths associated with said multi wavelength illumination unit, is selected from the list consisting of:

substantially visible red color light;
substantially visible green color light;
substantially visible blue color light;
substantially visible cyan color light;
substantially visible yellow color light;
substantially visible magenta color light;
substantially infra-red light;
substantially ultra-violet light; and
visible light.

23. The stereoscopic device according to claim 19, wherein each said different ranges of wavelengths associated with said sensors, is selected from the list consisting of:

substantially visible red color light;
substantially visible green color light;
substantially visible blue color light;
substantially visible cyan color light;
substantially visible yellow color light;
substantially visible magenta color light;

substantially infra-red light;
substantially ultra-violet light; and
visible light.

24. The stereoscopic device according to claim 15, wherein said multi wavelength light sensor array is a color red-green-blue (RGB) sensor array.

25. The stereoscopic device according to claim 15, wherein said multi wavelength light sensor array is a color cyan-yellow-magenta-green (CYMG) sensor array.

26. The stereoscopic device according to claim 15, wherein said visually stable sequence of display images comprises a plurality of sub-matrices, wherein each of said sub-matrices is selected from a respective one of said images.

27. The stereoscopic device according to claim 15, wherein each of said sub-matrices is located at a distance equal to a respective one of said movements from an origin, in a direction opposite to said respective movement, relative to said origin.

28. The stereoscopic device according to claim 27, wherein the color of each of said sub-matrices is selected from the list consisting of:
substantially visible red;
substantially visible green;
substantially visible blue;
substantially visible cyan;
substantially visible yellow;
substantially visible magenta;

29. The stereoscopic device according to claim 18, further comprising:

a stereoscopic video generator connected to said image processor; and

a stereoscopic display unit connected to said stereoscopic video generator, for producing said visually stable sequence of display images.

30. Method for producing a stable sequence of stereoscopic images of an object, the method comprising the steps of:

detecting a plurality of stereoscopic images, using a stereoscopic sensor assembly;

for each said stereoscopic images, detecting movements of said stereoscopic sensor assembly relative to said object; and

for each said stereoscopic images, selecting a portion of each of said stereoscopic images, according to said respective movement.

31. The method according to claim 30, further comprising a preliminary step of illuminating a detected area of said object.

32. The method according to claim 31, wherein the average of said movements is constant.

33. The method according to claim 32, wherein said stereoscopic sensor assembly comprises a lenticular lens layer and a light sensor array, wherein said lenticular lens layer is located in front of said light sensor array.

34. The method according to claim 33, wherein said step of illuminating comprises a procedure of sequentially illuminating said detected area, with alternating beams of light of different ranges of wavelengths.

35. The method according to claim 33, wherein said step of selecting further comprises a procedure of measuring a distance of a respective one of said movements from an origin, in a direction opposite to said respective movement relative to said origin.

36. The method according to claim 35, further comprising a step of associating each one of said sub-matrices in time, with the currently illuminating ranges of wavelength.

37. The method according to claim 32, wherein said stereoscopic sensor assembly comprises:

at least two apertures, each said apertures including a light valve, each said light valves being operative to open at a different predetermined timing; and

a multi wavelength light sensor array,

wherein said multi wavelength light sensor array detects said images, each one of said images corresponding to a predetermined combination of an open state of a selected one of said light valves and a selected one of at least two alternating beams of light.

38. The method according to claim 37, wherein said step of illuminating comprises a procedure of producing at least two alternating beams of light, each said beams of light characterized as being in a different range of wavelengths.

39. The method according to claim 38, wherein said step of selecting further comprises a procedure of measuring a distance of a respective one of said movements from an origin, in a direction opposite to said respective movement relative to said origin.

40. The method according to claim 39, further comprising a step of associating each one of said sub-matrices, at said different predetermined timing, with said different range of wavelengths.